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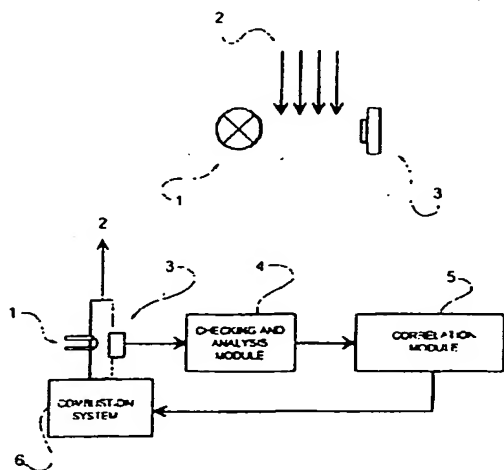
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(54) Title: AN OPTICAL SYSTEM FOR DETECTING THE CONCENTRATION OF COMBUSTION PRODUCTS

(57) Abstract: Optical system for detecting the concentration of com-
bustion products operating in situ and at high temperature based on
measurement of the optical absorption of a gaseous mixture of com-
bustion products through a photodetecting sensor based on gallium ni-
tride (GaN), aluminium nitride (AlN), indium nitride (InN) and corre-
sponding alloys. The operating temperature of the sensor preferably
lies between 500 °C and 700 °C, but the resistance of the active mate-
rial permits use at even higher temperatures. This system can be used
to measure the concentration of chemical species present in combustion
products directly at their outlet, where the high operating temperature
makes it possible to avoid fouling of the sensor caused by carbonaceous
and non-carbonaceous deposits. The rate of response of the system is
less than or equal to 1 millisecond and makes it possible to adjust the
parameters of an associated combustion process control system in real
time.

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